

REMARKS

This application is amended in a manner to place it in condition for allowance at the time of the next Official Action.

Status of the Claims

Claims 17-31 are amended for clarity.

Claims 32-34 are new, and are directed to features previously recited in the claims 14, 15, and 24, respectively.

Claims 17-34 remain pending in this application.

Claim Rejections-35 U.S.C. §112

Claims 13-31 were rejected under 35 U.S.C. §112, second paragraph, for being indefinite. This rejection is respectfully traversed for the reasons below.

Claim 13 is amended to clarify which chemical groups include "at least fourteen carbon atoms".

Claims 14, 15 and 24 are to clarify the meaning of "including but not limited to". That is, the chemical groups defined in claim 14, include, but are not limited to, those recited in new dependent claims 32. Similarly, suitable modifying co-monomers defined in claims 15 and 24, include, but are not limited to, those described in dependent claims 33 and 34, respectively.

Claim 18 and 19 amended to refer to the raw material described in the independent claim 15 from which they depend.

Claims 20, 21, 27 and 28 are amended to clarify that these claims are indeed directed to methods for manufacturing the polymer particles described in claims 13 and 14.

Claims 28 and 30 are amended to clarify that the method is directed to manufacturing vesiculated polymer particles from the raw material described in claim 15.

Therefore, the claims are now believed to be definite, and withdrawal of the rejection is respectfully requested.

Claim Rejections-35 U.S.C. §102

Claims 13-31 were rejected under 35 U.S.C. §102(b) as being anticipated by BERESFORD et al. U.S. 4,321,332 ("BERESFORD"), which is equivalent to WO 81/01711. This rejection is respectfully traversed for the reasons below.

BERESFORD (WO 810711) is discussed at line 11 on page 1 of the present specification, as per the preliminary amendment filed.

There are at least two reasons that BERESFORD fails to anticipate the claimed invention.

Firstly, BERESFORD requires shorter chain monomers (twelve carbons, or C12, and less) than those claimed (at least fourteen, or C14). The shorter chain monomers have negligible hydrophobicity, which is contrary to claimed hydrophobic groups of claim 13. This is one reason these shorter chain monomers are

excluded from the claimed invention, e.g., in the independent claims 13 and 15, which require at least C14.

Secondly, and of equal importance, is the fact that BERESFORD does not make use of a modifying monomer as contemplated by the claimed invention, e.g., independent claim 15. BERESFORD makes use of styrene and methyl methacrylate as diluent monomers, but prefers at least 50% by weight to be styrene. Small quantities of co-monomers are added to modify physical properties of the co-reacted resins. However, none of the co-monomers listed are at least C14, and none impart hydrophobicity to the vesiculated particles formed. Thus, the co-monomers also fail to impart hydrophobicity to the pain formulations in which they are used.

Furthermore, BERESFORD fails to recognize the function of the diluent monomer and modifying monomer desired by the inventors.

The diluent monomer of the present invention is one that has several and simultaneous functions. The diluent monomer acts as a diluent, i.e., it lowers the viscosity of the polyester and in that sense acts as a solvent. It also reacts with the polyester in a free radical polymerization process at a reaction rate similar to that of the polyester in order to produce a co-polymer with the polyester in which the diluent is randomly distributed. This phenomenon is well known to those familiar with

the art of free radical polymerization of materials of similar reactivity in the presence of free radicals.

The modifying monomer of the present invention is different from the diluent monomer in that its rate of reaction with the polyester and with the diluent monomer is significantly slower than the reaction between the polyester and the diluent monomer. This means that the modifying monomer polymerizes at a slower rate leading to its placement on the surface of the polymerizing particles. The slower reaction of the modifying monomer is believed by the inventors to be due to its larger size and/or its isolated ethylenic reactive groups relative to the diluent monomer whose reactivity is influenced by its smaller size, as well as the fact that its ethylenic unsaturated groups occupy a conjugated position with the aromatic ring grouping that forms part of its chemical composition and structure. The modifying monomers contain an ethylenic unsaturation which is not conjugated with an aromatic ring but is isolated from any aromatic groups that may be present in its structure. It is well known that ethylenic unsaturated functional groups that are conjugated with an aromatic ring and/or ester grouping by virtue of their immediate proximity (alpha positioning relative to the aromatic ring or ester group) are significantly more reactive in free radical polymerizations relative to isolated and unconjugated ethylenic unsaturated functional groups as are present in the modifying monomer.

Each of the substances specified in claim 15 are long chain and are hydrophobic as evidenced by the attached table illustrating the water immiscibility of these substances. See the Appendix of this amendment.

It is clear to a skilled person that each of these substances is almost insoluble in water and the degree of solubility in water at 23°C is negligible. Thus, it is clear that a number of these groups are also sterically hindered, branched chained chemical groups.

In summary then, the "modifying" monomers used by BERESFORD are not long chain, i.e., at least 14 carbon atoms, and/or sterically hindered, branched chained of at least 14 carbon atoms, and thus, not hydrophobic.

Therefore, BERESFORD fails to anticipate, or even render obvious the claimed invention, and withdrawal of the rejection is respectfully requested.

In view of the amendment to the claims and the foregoing remarks, this application is in condition for allowance at the time of the next Official Action. Allowance and passage to issue on that basis is respectfully requested.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Please charge the fee of \$52.00 for the two extra dependent claims added herewith, to our credit card.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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APPENDIX:

The Appendix includes the following documents:

- Foreign patent documents cited in the Information Disclosure Statement filed March 30, 2005:
 - WO 81 01711
 - EP 0 307 139
 - EP 0 622 402
- The solubility data for the hydrophobic modifying monomers.